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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Mark A. WEBSTER et al.

Serial Number: 09/586,571

Filed: June 2, 2000

Title: **“DUAL PACKET CONFIGURATION FOR
WIRELESS COMMUNICATIONS”**

Art Unit: 2665

Confirmation No.: 6023

Examiner: Roberta A. Stevens

Customer No.: 21967

Attorney Docket 56162.000547
No.:

**REQUEST FOR
RECONSIDERATION**

Commissioner of Patents
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the Office Action dated October 20, 2004, reconsideration is respectfully requested. Claims 1, 3-20, 22-36 and 38-46 remain pending in this application.

Applicants appreciate the Office Action’s indication that claims 8, 9, 19, 32, 33, 44 and 45 contain allowable subject matter and would be allowable if rewritten to incorporate the features of the independent claims and any intervening claims. However, for the reasons set forth herein, Applicants submit that all pending claims are patentable.

I. Informal Matters

The Examiner has indicated in the Office Action that claims 18 and 31 are objected to, however, these claims are rejected in the body of the Action. Therefore, Applicants have proceeded as if claims 18 and 31 stand rejected. Clarification by the Examiner is requested.

II. Claim Rejections under 35 U.S.C. § 102(e)

Claims 1, 3, 6-18, 20, 22-31, 35, 36 and 38-43 stand rejected under 35 U.S.C. § 102(e) over U.S. Patent 6,678,310 to Andren *et al.* (hereinafter “the Andren patent”). Applicants respectfully traverse the rejection. In particular, Applicants submit that the Andren patent fails to disclose or suggest a transmitter that uses a dual packet configuration for wireless communication, comprising, a first modulator that modulates a first portion of each packet solely according to a serial modulation, and a second modulator that modulates a second portion of each packet solely according to a parallel modulation, the serial modulation comprising direct sequence spread spectrum (DSSS), and the parallel modulation comprising orthogonal frequency division multiplexing (OFDM), as recited in independent claim 1 and similarly recited in independent claims 20 and 36.

In contrast to the claimed invention, the Andren patent teaches a demodulator used in a base band processor of a spread spectrum radio transceiver that uses circuitry designed to reduce multipath signal echoes. The Andren patent is primarily concerned with demodulation techniques to reduce multipath interference. The patent does not anticipate dual mode devices which are able to operate in the same environment as traditional 802.11b compliant devices. 802.11b devices operate in the 1, 2, 5.5, and 11 Mbps speed range using serial modulation techniques, whereas the 802.11HRb devices operate at 54 Mbps or higher data rates using

parallel modulation techniques. This is consistent with Andren's discussion of the basic spread spectrum transceiver in column 7. A problem may arise when the two different type of devices are being used in the same environment, such as, for example, an office environment. In order to accomplish dual packet configurations in the claimed invention the packets include a first portion comprising the preamble and header and a second portion comprising the OFDM sync, signal symbol and data payload. In this way, any 802.11b devices can interpret the length field and other information contained in the header and know the amount of time to back off during transmission of the dual mode packet regardless of its data rate, even though they can not understand or demodulate the OFDM sync, signal symbol or payload or the OFDM mode bit also contained in the header. However, the OFDM mode bit is important to the 802.11HRb devices because it informs them to detect the ORDM sync pattern, read the OFDM signal symbol and retrieve the data in the OFDM payload allowing them to operate at the higher data rate without interference from the 802.11b devices.

FIGS. 1A-1C of the Andren patent, illustrating a basic spread spectrum radio transceiver, have been relied upon by the Examiner to anticipate the specific claim elements of a transmitter that uses a dual packet configuration comprising first and second modulators. The Examiner has relied upon the corresponding description of a basic spread spectrum radio transceiver which states that the variable data may be modulated and demodulated in different formats than the header portion to thereby increase the data rate. However, in making anticipatory rejection under §102(e), according to M.P.E.P §2131 the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed.

Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). In rejecting at least the independent claims, the Examiner has failed to meet this burden to the extent that the Examiner has not shown the correspondence between the claim elements of first and second modulators and the applied reference nor has the Examiner demonstrated any disclosure or even suggestion that in Andren the first modulator modulates solely according to serial modulation and the second modulator modulates solely according to parallel modulation, where the serial modulation is DSSS and the parallel modulation is OFDM. In fact, Andren does not discuss OFDM in the context of the portion relied upon by the Examiner. Rather, the Examiner has made the assertion that BPSK would offer the same results as OFDM. Applicants strongly disagree that the results of BPSK would be the same as OFDM. However, even assuming *arguendo* that the results would be the same, Applicants still maintain that a rejection based on this similarity of results is improper. To make such an assertion in a rejection would be analogous to stating that any novel structure or method that accomplishes a result would be anticipated by any other known non-equivalent structure or method that achieves the same result. This is clearly erroneous as equivalency is not evidenced by results. In addition, Applicants note that equivalence is not relevant under anticipatory rejections. The reference must expressly or inherently disclose each and every element. Equivalence in terms of results may be relevant to proving obviousness, but not in an anticipatory rejection. Thus, the Examiner has failed to meet the required burden in making in a rejection under §102(e). Accordingly, Applicants respectfully submit that claims 1, 20 and 36 are patentable over Andren.

Similarly, the Examiner has failed to properly reject several dependent claims under §102. For example, claims 6 and 22 specify that the header includes an OFDM mode bit. The Examiner states that Andren teaches that the reference phase of the first symbol of the variable portion of the packet is the output phase of the last symbol of the header. It is unclear what type of equivalence analogy the Examiner is trying to make here, but it is clear that these claims have not been properly rejected under §102.

Further examples of the Examiner's failure to reject the claims with a reference that expressly or inherently teaches each and every claim limitation are claims 13-16, 27-30 and 41-44, which all explicitly recite various features relating to a/the second portion of the packet modulated according to OFDM. Claim 13, for example, recites that the second portion includes OFDM symbols where each OFDM symbol includes a guard interval with a standard number of samples for OFDM. In rejecting this claim, the Examiner has merely stated that Andren teaches the claim element and inserts "high data rate modulation" for OFDM without providing any specific reference to equivalent disclosure in Andren. The §102 rejection is replete with similar unspecific equivalent-type rejections. Accordingly, Applicants respectfully submit that dependent claims 3-19, 22-35 and 38-46 are likewise patentable over Andren for at least the same reasons as independent claims 1, 20 and 36 as well as for the additional features recited therein.

In view of the foregoing, Applicants respectfully request that the rejection under 35 U.S.C. §102(e) be withdrawn. Applicants also note, that as discussed in the previous amendment, Andren may not be applied under §103(c) because, at the time of the invention, Andren was subject to an obligation of common assignment as this application and this application was filed after November 29, 1999 thus Andren is excluded under §103(c).

III. Claim Rejections under 35 U.S.C. § 103(e)

Claims 1, 3-18, 20, 22-31, 34-36, 38-43 and 46 stand rejected under 35 U.S.C. §103(a) over U.S. Patent 6,590,889 to Preuss in view of U.S. Patent 5,706,428 to Boer. Applicants respectfully traverse the rejection. In particular, Applicants submit that the combination of applied references fails to disclose or suggest a transmitter that uses a dual packet configuration for wireless communication, comprising, a first modulator that modulates a first portion of each packet solely according to a serial modulation, and a second modulator that modulates a second portion of each packet solely according to a parallel modulation, the serial modulation comprising direct sequence spread spectrum (DSSS), and the parallel modulation comprising orthogonal frequency division multiplexing (OFDM), as recited in independent claim 1 and similarly recited in independent claims 20 and 36.

In contrast to the claimed invention, the Preuss patent teaches a data communications system for shared wireless communications channels capable of accommodating terminals having different throughput capabilities by flexibly allocating cyclically rotated phases of a common code. One or more shifts of a cyclic orthogonal code are assigned to each terminal and these codes are used to spread the signals for transmission rather than using separate codes. Relying on FIG. 3 and the disclosure at column 6, the Examiner alleges that Preuss teaches first and second transceivers that modulate according to serial and parallel modulation techniques where the first is DSSS and the second OFDM. These sections may at best be characterized as disclosing that the header may be modulated according to a different modulation technique than the payload, such as, for example, BPSK. The Examiner then states that the recitation at column 4 of an FFT implies OFDM. However, this section merely refers to an alternative embodiment

in which FFT's are used to despread and recover the received information symbols by examining all relevant phases of the cyclically orthogonal code. That is, this FFT-based method is specifically designed to despread and recover the cyclically or orthogonal code sequence. It is not relevant to first and second modulation techniques. This alternate method of decoding has nothing to do with the manner in which the signal is modulated other than the fact that the code has been cyclically rotated. At columns 5 and 6 it is clear that in Preuss the second or data portion of the packets is modulated with 2^m -ary QAM. Thus, Preuss fails to disclose or even suggest the features of claims 1, 20 and 36. The Examiner relies upon Boer to teach using DSSS coding. However, Applicants submit that Boer fails to supply the deficiencies of Preuss with respect to independent claims 1, 20 and 36 as discussed above.

Therefore, Applicants respectfully submit that claims 1, 20 and 36 are patentable over the combination of applied references. Dependent claims 3-18, 22-31, 34, 35, 38-43 and 46 are likewise patentable over the combination of applied references for at least the same reasons as independent claims 1, 20 and 36. Accordingly, Applicants respectfully request that the rejection of the claims under 35 U.S.C. §103(a) be withdrawn.

IV. Conclusion

Applicants submit that all pending claims in this application are in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited. Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

In the event any variance exists between the amount enclosed and the PTO charges,
please also charge or credit any difference to Deposit Account No. 50-0206.

Respectfully submitted,

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